MARICOPA COUNTY
ENVIRONMENTAL SERVICES

INSTRUCTIONS

FOR REPORTING 2002

ANNUAL AIR POLLUTION EMISSIONS

January 2003

Emissions Inventory Unit
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(602) 506-6985 (Fax)

Copies of this document, related forms
and other reference materials are available online at:
www.maricopa.gov/envsvc/air/ei.asp

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WHAT'S NEW FOR 2002?

- Some **preprinted information** on your report is different from last year. Please review the enclosed forms carefully. If you use your own computerized reproduction of our forms from a previous report, your information must conform to the current information supplied on our 2002 preprinted forms.
- **EPA emission factors for lead** (Pb) are now included for many processes.
- New guidance exists for calculating emissions from c**ultured marble and fiberglass processes** that use vapor-suppressed resins. Refer to the "Emissions Inventory Help Sheet for Polyester Resin Application" for further details.
- All **2002 reporting forms are available** at: *www.maricopa.gov/envsvc/air/ei/eiguides.asp* in an editable .pdf format (requires Adobe Acrobat). Data can be entered on these forms and printed to be included in the hard copy submission of this years report.

I. INTRODUCTION

An annual emissions inventory is a formal report submitted by a business that: (1) lists all processes emitting reportable air pollutants and (2) provides details about each of those processes. Submitting the emissions inventory report is ***required*** as a condition of your Maricopa County Air Quality Permit. A separate emissions report is required for each business location determined by the air quality permit.

Follow these steps to complete your 2002 Maricopa County emissions inventory:

STEP 1: Determine which forms are needed for your business. There are eight different forms available, but not all are required for every type of business. For most permittees, this packet contains the necessary pre-printed forms based on your site's most recent emissions inventory.

1. **Business Form**: Contains general contact information about the firm. This form is required for all businesses.
2. **Stack Form**: Only required if your business location annually emits over 10 tons of any of these single pollutants (CO, VOC, NO_x, PM_{10}, or SO_x). A "stack" is defined as a stack, pipe, vent or opening through which a significant percentage of emissions (from one or more processes) are released into the atmosphere. See the "Stack Form Instructions" on page 7 for specific requirements.
3. **Control Device Form**: Required only if there is one or more emission control devices used at the business location.
4. **General Process Form** and
5. **Evaporative Process Form**: Either or both will be required for all businesses.
6. **Off-Site Recycling/Disposal Form**: Required if you want to claim off-site recycling or disposal.
7. **Emission Factor Calculations**: Required as attachment for each process for which you calculated your own emission factors.
8. **Data Certification/Fee Calculation Form**: Required for all businesses.

STEP 2: Complete the applicable forms. Detailed information on how to complete the most common forms is included in this document. This packet also contains information about other resources (workshops, one-on-one assistance, etc.) available to help you in completing the necessary forms.

STEP 3: Make a copy of your completed emissions inventory report. Make sure to KEEP COPIES of all forms submitted and copies of all records and calculations used in completing the forms. Air pollution control regulations require that you keep all documentation for at least FIVE YEARS at the location where pollution is being emitted.

STEP 4: Make sure the Data Certification/Fee Calculation Form is ***signed*** by a company representative. ***Include your air quality permit number on all correspondence and checks submitted with your report.*** Return the original, signed copy of your annual emission report, with payment for any applicable emission fees, to:

Maricopa County Environmental Services Dept.
Emissions Inventory Unit
1001 North Central Avenue, Suite 100
Phoenix, AZ 85004

II. REPORTING REQUIREMENTS

POLLUTANTS TO BE REPORTED:
Your emissions inventory must include your business's emissions of the following air pollutants:

CO	=	Carbon monoxide
NO_x	=	Nitrogen oxides
PM_{10}	=	Particulate matter less than 10 microns
SO_x	=	Sulfur oxides
VOC	=	Volatile organic compounds *
HAP&NON	=	Hazardous Air Pollutant (HAP) that is also NOT a precursor of ozone **
NH_x	=	Ammonia & ammonium compounds
Pb	=	Lead

* A ***volatile organic compound (VOC)*** is defined as any compound of carbon that participates in atmospheric photochemical reactions. This definition ***excludes***: carbon monoxide, carbon dioxide, acetone, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, as well as certain other organic compounds. (See Maricopa County Air Pollution Control Rule 100 for a full definition.)

** ***HAP&NON:*** Usage of certain materials that are both a Hazardous Air Pollutant (HAP) and not a precursor of ozone should also be reported if:
(a) your site is subject to a Federal MACT (Maximum Achievable Control Technology) standard ***OR***
(b) your air quality permit contains specific quantitative limits on these materials.

The most common materials in this category include:

- methylene chloride (dichloromethane)
- perchloroethylene
- 111-trichloroethane (111-TCA or methyl chloroform)
- hydrochloric acid
- hydrofluoric acid

VOC materials that are classified as HAPs are reported as VOC.

ASSIGNING IDENTIFICATION NUMBERS (IDs):
Unique IDs are required for the following report elements: Stacks, Control Devices and Processes. For processes, that means a process ID number may be used only once on all General Process and Evaporative Process Forms.

These numbers are usually assigned by the person who prepares the original report. If you are adding something new to a preprinted report, assign a number not already in use. Once an ID number is assigned, continue using the same number for that item from year to year, indefinitely, until it is no longer part of your report. If that item is no longer reportable, return the preprinted form with a brief explanation. Do not use that ID number again.

III. HELPFUL HINTS AND INFORMATION

Be sure to verify all preprinted information on forms. If any information is incorrect or blank, please provide correct information. Making a change on the Business Form will **NOT** transfer the permit ownership or location. You must contact the Department's Business Services Office at (602) 506-6464 to accomplish this.

WHAT IS A PROCESS? A ***process*** is a business activity at your location that emits CO, VOC, NO_x, PM_{10}, SO_x, NH_x (ammonia compounds) or HAP&NON (hazardous air pollutants which are not precursors of ozone), and has only ***one*** material type as input and ***one*** operating schedule. For each applicable process at your business, you must assign a unique Process ID number to differentiate each process.

PROCESSES AND MATERIALS THAT DO ***NOT*** HAVE TO BE REPORTED:

- Welding.
- Acetone usage.
- Fuel use for forklifts or other vehicles. (NOTE: Fuel use in ***non-vehicle*** engines ***is*** reportable.)
- Storage emissions from fuels or organic chemicals in any tank with a capacity less than 250 gals.
- Storage emissions of diesel and Jet A fuel in underground tanks of any size.
- Storage emissions of diesel and Jet A fuel in aboveground tanks, throughput less than 4,000,000 gal/yr.
- Routine pesticide usage, housekeeping cleaners, and routine maintenance painting at your facility.

Please group all similar equipment and materials together before applying the following limitations:

- Internal combustion engines (e.g., emergency generators) or external combustion equipment (e.g., boilers and heaters) that operated less than 100 hrs. and burned less than 200 gals. diesel or gas, or less than 100,000 cubic feet of natural gas.
- Materials with usage of less than 15 gallons or 100 pounds per year.

GROUPING MATERIALS AND/OR EQUIPMENT UNDER ONE PROCESS ID:
You can group together under one process ID:

- All internal combustion engines ***less than 600 horsepower*** if they burn the same fuel and have similar operating schedules.
- All external combustion equipment (boilers, heaters) ***less than 10,000,000 Btu*** per hour if they burn the same fuel and have similar operating schedules.
- All similar evaporative materials with similar emission factors that have similar operating schedules and process descriptions. For example, group low-VOC red paint, green paint and white paint together as one material "Paint: Low-VOC." Do not group thinners with paints. ***NOTE***: Attach documentation showing how the grouped emission factor was determined. See the example on page 18.
- All underground tanks with the same fuel and same type of vapor recovery system. ***DO NOT*** report diesel or Jet A underground tank emissions. ***DO NOT*** report aboveground diesel or Jet A tank emissions when throughput is less than 4,000,000 gallons annually.

INDUSTRY-SPECIFIC INSTRUCTIONS: Additional help sheets, detailed examples, and special instructions are available for a number of specific processes or industries listed below. To get copies of any of these documents, please visit our Web page at *www.maricopa.gov/envsvc/air/ei.asp* or call (602) 506-6790.

- Bakeries
- Fuel Storage and Handling
- Incinerators and Crematories
- Lg. Aboveground Storage Tanks
- Concrete Batch Plants
- Natural Gas Boilers/Heaters
- Polyester Resin
- Printing Plants
- Roofing Asphalt
- Vehicle Refinishing
- Sand and Gravel Plants
- Using EPA's TANKS 4.09b Program
- Vehicle Travel on Unpaved Roads
- Woodworking

COMMONLY USED CONVERSION FACTORS:

1 gram/liter	= 0.00834 lbs/gal	1 foot	= 0.0001894 mile
1 liter	= 0.2642 gallon US	1 square foot	= 0.000022957 acre
1 therm	= 0.0000952 MMCF	1 pound	= 0.0005 ton

NOTE: MM = 1,000,000 Example: MM CF = 1,000,000 cubic feet
M = 1,000 Example: M GAL = 1,000 gallons

CONFIDENTIALITY OF DATA SUBMITTED:

Information submitted in your annual emissions reports must be made available to the public unless it meets certain criteria of Arizona State Statutes and Maricopa County Rules. Applicable excerpts concerning confidentiality of data are reproduced below.

ARS § 49-487 D. ...the following information shall be available to the public:…

2. The chemical constituents, concentrations and amounts of any emission of any air contaminant. ...

MARICOPA COUNTY AIR POLLUTION CONTROL RULES AND REGULATIONS, Rule 100:

200.107 TRADE SECRETS - Information to which all of the following apply:

a. A person has taken reasonable measures to protect from disclosure and the person intends to continue to take such measures.

b. The information is not, and has not been, reasonably obtainable without the person's consent by other persons, other than governmental bodies, by use of legitimate means, other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding.

c. No statute, including ARS §49-487, specifically requires disclosure of the information to the public.

d. The person has satisfactorily shown that disclosure of the information is likely to cause substantial harm to the business's competitive position.

402 CONFIDENTIALITY OF INFORMATION:

402.2 Any records, reports or information obtained from any person under these rules shall be available to the public ... unless a person:

a. Precisely identifies the information in the permit(s), records, or reports which is considered confidential.

b. Provides sufficient supporting information to allow the Control Officer to evaluate whether such information satisfies the requirements related to trade secrets as defined in Section 200.107 of this rule.

For emissions inventory information to be kept confidential, the following must be done:

- Specific data which you request be held confidential must be identified by marking an "X" in the corresponding gray confidentiality box(es) on the relevant report forms. Only data in fields with a gray confidentiality box is eligible to be held confidential.
- Provide a written explanation which gives factual information satisfactorily describing why releasing this information could cause substantial harm to the business's competitive position.
- Use the gray-shaded boxes on the reporting forms to indicate which data are to be held confidential. Do NOT stamp "Confidential", highlight data, or otherwise mark the page.
  No data can be held confidential without proper justification.

ADDITIONAL RESOURCES AND ASSISTANCE:

The Maricopa County Emissions Inventory Web page at *www.maricopa.gov/envsvc/air/ei.asp* contains additional reference materials, such as:

- blank copies of most emissions reporting forms.
- this document, "Instructions for Reporting 2002 Annual Air Pollution Emissions".
- an updated list of emission factors for a large number of industrial processes, including SCC codes.
- a list of Tier Codes for industrial processes.
- detailed help sheets for a number of specific industries or processes.

To receive any of the above materials by fax or mail, or for additional information or assistance in how to calculate and report your emissions, please call us at (602) 506-6790.

IV. INSTRUCTIONS FOR COMPLETING COUNTY EMISSIONS INVENTORY FORMS

Business Form Instructions

Verify all preprinted information, and make corrections where necessary. When making corrections, strike out the preprinted data and write in corrections beside it. Please make all changes readily noticeable.

NOTE: Indicating a change in ownership or business location on the Business Form will ***not*** serve to transfer the permit ownership or location. You must contact the Department's Business Services Office at (602) 506-6464 to accomplish this.

Data fields:

6 Number of employees: This should be the annual average number of full-time equivalent (FTE) employee positions.

9 NAICS Code: This 5- or 6-digit North American Industrial Classification System (NAICS) code has been introduced to replace the 4-digit Standard Industrial Classification (SIC) codes. Please list the primary and secondary NAICS codes for your business, if known.

10 Preparer of the Inventory (primary contact for technical questions concerning this report): This should be the person who knows the most about the data in the report. If this person has an e-mail address used for business purposes, please provide it.

Stack Form Instructions

A "stack" is defined as a stack, pipe, vent or opening through which a significant percentage of emissions (from one or more processes) are released into the atmosphere (with or without a control device).

NOTE: Stack information is required only if your business location annually emits over 10 tons of any one of the following pollutants: CO, VOC, NO_x, PM_{10}, or SO_x. If so, you must complete a Stack Form for:

- each stack connected to a control device.
- any stack that discharges annually more than 5 tons of combined pollutant emissions (such as a paint booth exhaust).

EXAMPLE Stack Form Information:

1	2	3	4	5a OR 5b		6a OR 6b & 6c			7
Stack ID	Stack Type Code*	Stack Height**	Exit Gas Temperature	Velocity feet/sec	Flow Rate acfm	Diameter inside inch	Length / Width inside inch		Stack Name/Description (Optional)
1	***W***	***30*** ft	***90*** ^{o}F		***20,000***	***36***			***paint booth***
2	***V***	***14*** ft	***200*** ^{o}F		***19,186***	***40***			***thermal oxidizer***

* Stack Type Codes: **V** = Vertical unobstructed **H** = Horizontal unobstructed
D = Downward unobstructed **G** = Gooseneck
W = Obstructed vertical (e.g. weather cap)

** Stack height is calculated relative to the surrounding terrain. For instance, the stack height of a 10-foot stack on top of a 20-foot tall building is 30 feet.

Data fields:

1 Stack ID: (See "Assigning Identification Numbers" on page 3.) A number (up to three digits, numeric only) which identifies a specific stack. It is suggested you start with 1, then 2, etc.

4 Exit Gas Temperature: Should represent average operating conditions.

5a Exit Gas Velocity: ***OR*** 5b Gas Flow Rate:
Provide ***EITHER*** the exit velocity (in feet per second) ***OR*** the flow rate of gas (in actual cubic feet per minute) exiting the stack during normal operations. Preprinted information provides both.

6a Inside Stack Diameter: For round stacks, provide Inside Stack ***Diameter*** in inches.
OR
6b & 6c Inside Stack Length and Width: For square or rectangular stacks, provide inside ***Length and*** inside ***Width*** in inches. Preprinted information also provides the calculated diameter of an equivalent circle.

Control Device Form Instructions

EXAMPLE Control Device Form Information

1	2	3	4	5	6
Control ID	Installation/ Reconstruction* Date	Size or Rated Capacity**	Control Type Code	Control Device Name/Description	Stack ID
1	***05/09/98***	***25,000.0*** cfm	***021***	***Thermal oxidizer***	***2***
4	***03/10/97***	cfm	***153***	***Watering with water trucks***	

Data fields:

1 Control ID: (See "Assigning Identification Numbers" on page 3.) A unique number (up to three digits) that you assign to identify a specific control device.

2 Installation/Reconstruction Date: The completion date (given in *mm/dd/yy* format) of installation or the most recent reconstruction of the identified control device. This is not a date on which routine repair or maintenance was done. Reconstruction means any component of the control device was replaced and the cost (fixed capital) of the new component(s) was more than half of what it would have cost to purchase or construct a new control device.

3 Size or Rated Capacity: Report the air or water flow rate in ***cubic feet per minute***. Some devices (e.g., water trucks for dust control) will not include a value in this field.

4 Control Type Code: A 3-digit code designating the type of control device. A complete list of all EPA control device codes can be found on the Web at *http://www.maricopa.gov/envsvc/AIR/EI/eiguides.asp* or call 602-506-6790 for assistance.

6 Stack ID: Not all businesses require a Stack ID. This is required if the Stack Form is required for your site (see page 7) ***and*** the control device has a vent. This is the ID number shown in column 1 of the Stack Form to identify the specific stack that this control device vents to. The Stack ID can be entered on this form after the Stack Form has been filled out.

General Process Form Instructions

The General Process Form is used to record data on all emissions-producing processes except evaporative processes. A ***general*** process is normally characterized by the burning or handling of a material. One form reports all the pollutants for one process. For example, several pollutants are produced by burning fuel, and PM_{10} is emitted by processing rock products, processing materials such as wood or cotton, and driving on unpaved areas.

Data fields: (See sample forms on pages 11 and 12.)

1 Process ID: A number (up to three digits) that is preprinted or you assign. (See "Assigning Identification Numbers" on page 3.) This Process ID number can NOT be used for any other process at this location.

3 Stack ID(s): The stack ID number(s) shown in column 1 of the Stack Form that identify the stack(s) which vent pollution created by this process. Not all businesses are required to report stacks. This is only required if the Stack Form is required for your site (see page 7) ***and*** the process has a stack.

4 Process Tier Code and
5 SCC Code:

If these codes are not preprinted on your form, please consult our web page at *www.maricopa.gov/envsvc/air/ei.asp* or call (602) 506-6790.

6 Seasonal Throughput Percent: Enter the percent of total annual operating time that occurred per season, rounded to the nearest percent. For example, "Dec-Feb 30% " means 30% of total annual process activity occurred between December and February. The total for all four seasons must equal 100%.

7 Normal Operating Schedule and
8 Typical Hours of Operation:

These represent the usual number of hours and time of day when ***this process*** occurred during the calendar year.

9 Emissions Based on: Provide the ***name*** of the material used, fuel used, product produced, or whatever was measured for the purpose of calculating emissions, such as “hours of operation,” “vehicle miles traveled,” or “acres.”

10 Used or Produced: Indicate whether calculated emissions are based on a material type *used*, a fuel *used* or a product *produced*. *Leave this field blank* if “hours of operation,” “vehicle miles traveled,” “acres,” or similar unit of measurement is used.

11 Annual Amount: The annual amount (a mathematical number) of material that was used, fuel combusted, product produced, hours of operation, vehicle miles traveled, or acres.

12 Unit of Measure: Units of the material used, fuel used or product produced shown on line 9. For example: gallons, pounds, tons, therms, acres, vehicle miles traveled, units produced.

13 Unit Conversion Factor: You must provide this if you use an emission factor with an emission factor unit (see item 16 below) that is ***not*** the same as the unit of measure (from line 12). This is the standard number you would multiply your amount (line 11) by to convert it to the units of the emission factor. These are some common unit conversion factors:

	Unit Conversion Factor:
– To convert gallons to Mgal. (1,000 gallons)	Multiply by: 0.001
– To convert pounds to tons	Multiply by: 0.0005
– To convert therms to MMCF (million cubic feet) of natural gas	Multiply by: 0.0000952

General Process Form Instructions (continued)

14 Pollutant: See page 3 for a list of pollutants that need to be reported.

15 Emission Factor (EF): The number to be multiplied by the annual amount (line 11) to determine how much of the pollutant was emitted. If you calculate your own emission factor or change the preprinted emission factor, you must provide details of your calculations on an attachment.

16 Emission Factor (EF) Units: Enter the appropriate Emission Factor Units in pounds (lb) per unit; e.g., lb/ton, lb/MMCF, lb/gal.

17 Controlled Emission Factor (EF)? YES or NO: Indicate "YES" if: 1) you have your own emission factor from testing **and** included the control device efficiency within the factor, or 2) the emission factor used is clearly identified as a controlled emission factor. A "YES" response requires the use of Formula A (see #24 below). Indicate "NO" if: 1) there is no emission control device, or 2) the EF represents emission rates **before** controls. A "NO" response requires the use of Formula B (see #24 below).

18 Calculation Method: Enter the number code (listed at the bottom of the General Process Form) which best describes the method you used to obtain this emission factor. Code 5, "AP-42/FIRE Method or Emission Factor" means that the factor comes from EPA documents or software. ***NOTE:*** If you have conducted a source test that was required and approved by the County for a specific process or piece of equipment, you ***must*** use the emission data from that test. Report "4" in this column.

19 through 23: Leave blank if there is no control device.

19 Capture % Efficiency: The percent of the pollutant that is captured and sent to the primary control device in this process. Be sure to list a capture efficiency separately for ***each*** pollutant affected.

20 Primary Control Device ID: If this pollutant is being controlled in this process, enter the Control Device ID number which represents the first control device affecting the pollutant.

21 Secondary Control Device ID: If this pollutant is being controlled sequentially by 2 devices, enter the Control Device ID number which represents the second control device; otherwise leave this field blank.

22 Control Device(s) % Efficiency: Enter the total control efficiency of the control device(s). Be sure to list a control device efficiency separately for ***each*** pollutant affected. If you report a control device efficiency, you must ***also*** show a capture efficiency in column 19.

23 Efficiency Reference Code: Enter the code (1 through 7) that best describes how you determined the ***control device efficiency***. A list of possible codes is included at the bottom of the form.

24 Estimated Actual Emissions (in pounds/year): You may round the calculated emissions values to the nearest pound. Calculate as follows:

A. *Emissions with no controls* or *controls are reflected in the emission factor:*
Column 24 = line 11 × line 13 × column 15

B. *Emissions after control:*
Column 24 = line 11 × line 13 × column 15 × (1 – [column 19 × column 22])

Use the decimal equivalent for columns 19 and 22. Example: 96.123% = 0.96123

General Process Form **2002**

EXAMPLE: Internal Combustion

Permit number(s) 999999

Place an X in any gray cell to mark data requested to be held confidential. See Instructions for requirements for information to be deemed confidential.

1- Process ID 80

2- Process Type/Description: 3 engines for crushing (each less than 600 HP), diesel @ 0.05% sulfur content

3- Stack ID(s) *(only if required on Stack Form)* _____ _____ _____ _____ _____

4- Process TIER Code: 020599 FUEL COMB. INDUSTRIAL: INTERNAL COMBUSTION

5- SCC Code 20200102 *(8 digit number)* IND:DIESEL-RECIPROCATING

6- Seasonal Throughput Percent: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %

7- Normal Operating Schedule: Hours/Day 8 Days/Week 5 Hours/Year 2080

8- Typical Hours of Operation: *(military time)* Start 0700 End 1530

9- Emissions based on *(name of material or other parameter, e.g. "rock", "diesel", "vehicle miles traveled")* DIESEL

10- ☒ Used (input) or ☐ Produced (output)

11- Annual Amount: *(a number)* 16,250

12- Unit of Measure: *(for example: tons, gallons, million cu ft, acres, units produced, etc.)* GALLONS

13- Unit Conversion Factor *(if needed to convert Unit of Measure to correlate with emission factor units)* 0.001

	Emission Factor (EF) Information				Control Device Information					
14	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Pollutant	Emission Factor (EF) (number)	Emission Factor Unit (lb per)	Controlled EF? Yes or No	Calculation Method Code*	Capture % Efficiency	Primary Control Device ID	Secondary Control Device ID	Control Device(s) % Efficiency	Efficiency Reference Code**	Estimated Actual Emissions
CO	130	M GALS	N	5						2,113 lbs
NOx	604	M GALS	N	5						9,815 lbs
PM-10	42.5	M GALS	N	5						691 lbs
SOx	39.7	M GALS	N	5						645 lbs
VOC	49.3	M GALS	N	5						801 lbs

*** Calculation Method Codes:**

1 = Continuous Emissions Monitoring Measurements
2 = Best Guess / Engineering Judgment
3 = Material Balance
4 = Source Test Measurements (Stack Test)
5 = AP-42 / FIRE Method or Emission Factor
6 = State or Local Agency Emission Factor
7 = Manufacturer Specifications

**** Control Efficiency Reference Codes:**

1 = Tested efficiency / EPA reference method
2 = Tested efficiency / other source test method
3 = Design value from manufacturer
4 = Best guess / engineering estimate
5 = Calculated based on material balance
6 = Estimated, based on a published value

General Process Form **2002**

EXAMPLE: Unpaved Road Travel

Permit number(s) 999999

Place an X in any gray cell to mark data requested to be held confidential. See Instructions for requirements for information to be deemed confidential.

1- Process ID 28

2- Process Type/Description: UNPAVED ROAD TRAVEL: HEAVY-DUTY TRUCKS @ 15 MPH

3- Stack ID(s) *(only if required on Stack Form)* _____ _____ _____ _____ _____

4- Process TIER Code: 140799 MISCELLANEOUS: FUGITIVE DUST

5- SCC Code 30502504 *(8 digit number)* SAND/GRAVEL: HAULING

6- Seasonal Throughput Percent: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %

7- Normal Operating Schedule: Hours/Day 8 Days/Week 5 Hours/Year 2080

8- Typical Hours of Operation: *(military time)* Start 0700 End 1530

9- Emissions based on *(name of material or other parameter, e.g. "rock", "diesel", "vehicle miles traveled")* VEHICLE MILES TRAVELED (VMT)

10- ☐ Used (input) or ☐ Produced (output)

11- Annual Amount: *(a number)* 7,500

12- Unit of Measure: *(for example: tons, gallons, million cu ft, acres, units produced, etc.)* VMT

13- Unit Conversion Factor *(if needed to convert Unit of Measure to correlate with emission factor units)* _____

	Emission Factor (EF) Information				Control Device Information					
14	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Pollutant	Emission Factor (EF) (number)	Emission Factor Unit (lb per)	Controlled EF? Yes or No	Calculation Method Code*	Capture % Efficiency	Primary Control Device ID	Secondary Control Device ID	Control Device(s) % Efficiency	Efficiency Reference Code**	Estimated Actual Emissions
PM-10	3.2	VMT	N	6	100	4		70	6	7200 lbs
										lbs
										lbs
										lbs
										lbs
										lbs

NOTE: Emissions in col. 24 are calculated as follows: (line 11 × col. 15) × (1 – [col. 19 × col. 22])

*** Calculation Method Codes:**

1 = Continuous Emissions Monitoring Measurements
2 = Best Guess / Engineering Judgment
3 = Material Balance
4 = Source Test Measurements (Stack Test)
5 = AP-42 / FIRE Method or Emission Factor
6 = State or Local Agency Emission Factor
7 = Manufacturer Specifications

**** Control Efficiency Reference Codes**

1 = Tested efficiency / EPA reference method
2 = Tested efficiency / other source test method
3 = Design value from manufacturer
4 = Best guess / engineering estimate
5 = Calculated based on material balance
6 = Estimated, based on a published value

Evaporative Process Form Instructions

The Evaporative Process Form is used to report all emissions produced by evaporation. Examples include: cleaning with solvents, painting and other coatings, printing, using resin, evaporation of fuels from storage tanks, ammonia use, etc. All other processes should be shown on the General Process Form.

One Evaporative Process Form may be used to report numerous materials, with each material given a separate process ID number, as long as the information on lines 1-6 apply to all items on that form. Use a separate form for each group of materials that has a different Process Type/Description (shown on line 1), different Tier Code (line 2) or different operating schedule (lines 3, 4, or 5). Storage tank emissions also must appear on a separate form (see 6 below).

Data fields: (See sample forms on pages 15 and 16.)

1 Process Type/Description: Brief details of the activity in which the listed materials were used.

2 Process Tier Code: If this 6-digit code is not preprinted on your form, please refer to the Tier Code list at *www.maricopa.gov/envsvc/air/ei/eiguides.asp* or call (602) 506-6790.

3 Seasonal Throughput Percent: Enter the percent of total annual operating time that occurred per season (rounded to the nearest percent). For example, "Dec-Feb 30% " means 30% of total annual process activity occurred between December and February. The total for all four seasons must equal 100%.

4 Normal Operating Schedule and
5 Typical Hours of Operation: These represent the usual number of hours and time of day when the emissions reported on ***this form*** occurred during the year.

6 Storage Tanks: Report emissions from storage of VOC liquids only for tanks larger than 250 gallons. Mark only one category of tank installation, using an additional form per category if needed. "Vaulted" here means the tank is completely enclosed in a building or by thermal insulation. Do NOT include diesel or Jet A tanks with less than 4,000,000 gallons throughput per year. See the "Emissions Inventory Help Sheet for Fuel Storage and Handling" for more specific instructions applicable for fuel tanks up to 15,000 gallons capacity. Bulk plants and terminals should consult the "Help Sheet for Reports Using EPA's TANKS 4.09b Program" or the "Help Sheet for Large Aboveground Storage Tanks."

7 Process ID: A number (up to three digits) that represents this specific material (process). Each process on one form must have the same tier code and operating schedule as that shown in the top portion of the form. This Process ID number can ***not*** be used for any other process at this business location. See page 3 of these instructions for more explanation of ID numbers and page 4 for exclusions and guidance on grouping materials.

8 Stack ID(s): The stack ID number(s) shown in column 1 of the Stack Form that identify the stack(s) which vent pollution created by this process. Not all businesses are required to report stacks. This is only required if the Stack Form is required for your site (see page 7) ***and*** the process has a stack.

9 Material Type: Provide the name of the material used in this process. Give the chemical name for pure chemicals or a name that reflects its use (paint, ink, etc.), rather than just a brand name or code number. Examples of materials include: paint, thinner, degreasing solvent (plus its common name), ink, fountain solution, ammonia, alcohol, ETO (ethylene oxide), gasoline (in a storage tank).

10 Annual Material Usage/Input: Amount of this material used during the year. In most cases, the amount purchased is suitable. Write in "lbs" or "gal" (pounds or gallons).

Evaporative Process Form (continued)

11 Pollutant: The only pollutants reported on this form are VOC, HAP&NON and NH_X (see definitions on page 3). When one process (or material) has more than one of these pollutants, list each pollutant on a separate line, using the same process ID number.

12 Emission Factor (EF): An emission factor is a number used to calculate the pounds of pollutant emitted based on the quantity of material used in a process. Emission factors can be obtained from your supplier (usually provided on a Material Safety Data Sheet or environmental data sheet), and must correspond with the material units reported in column 10. If the material unit is "gal," then the emission factor must be in pounds of pollutant per gallon. If the material unit is "lb," then the emission factor must be in pounds of pollutant per pound of material.

Verify (and correct, where necessary) all pre-printed emission factors, as the composition of materials used may have changed since your last report. A "lb/gal" emission factor is almost always less than 8 and never greater than 14. A "lb/lb" emission factor is never larger than 1.0.

13 Pounds of pollutant sent off site: Required only if you wish to take credit for reduced emissions because of waste of this material sent off-site for recycling or disposal. Only waste generated during the report year may be claimed. The Off-Site Recycling/Disposal Form ***must*** be completed if you wish to claim a credit. The number of pounds reported in column 13 ***must*** equal the number of pounds reported on the Off-Site Recycling/Disposal Form(s) for the same Process ID number.

14 and 15: Leave these fields blank if there is no control device present.

14 Capture % Efficiency: The percent of the pollutant from this process that is captured and sent to the control device.

15 Control ID: If this pollutant is being controlled in this process, enter the Control Device ID number from column 1 of the Control Device Form.

Control % Efficiency: Enter the percent of this pollutant that is controlled by this control device.

Code: Select the Control Efficiency Reference Code from the list at the bottom of the form.

16 Estimated Emissions (lbs/yr): Estimated pounds of the pollutant emitted during the year, after off-site recycling/disposal and controls if applicable. **Credit will not be given for off-site recycling/disposal unless it is shown on the Off-Site Recycling/Disposal Form.** Round to the nearest pound. If the answer is 0, give a decimal answer to the first significant digit. Column 16 is calculated as follows:

Emissions without off-site recycling/disposal or controls:
Column 16 = column 10 × column 12

Emissions with off-site recycling/disposal:
Column 16 = (column 10 × column 12) – column 13

*Emissions with off-site recycling/disposal **and** controls:*
Column 16 = ([column 10 × column 12] – column 13) × (1 – [column 14 × column 15])

Use the decimal equivalent for columns 14 and 15. Example: 96.123% = 0.96123

EXAMPLE: Coating and Painting

Evaporative Process Form 2002

Permit number(s) 999999

Place an X in any gray cell to mark data requested to be held confidential. See Instructions for requirements for information to be deemed confidential.

1- Process Type/Description: Coating metal widgets

2- Process TIER Code: 080415 SOLVENT USE: SURFACE COATING - MISC METAL PARTS

3- Seasonal Throughput Percent: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %

4- Normal Operating Schedule: Hours/Day 8 Days/Week 5 Hours/Year 2080

5- Typical Hours of Operation *(military time)* Start 0800 End 1700

6- For STORAGE TANKS only. Select only one: ☐ Above Ground Vaulted ☐ Under Ground ☐ Above Ground NON-Vaulted

NOTE: Place an X in any gray cell to mark data requested to be held confidential. See Instructions for requirements for information to be deemed confidential.

7	8	9	10		11*	12		13	14	15			16
Process ID	Stack ID(s)	Material Type	Annual Usage Input	lb or gal	VOC, HAP&NON or NHx	Emission Factor	EF Units (lbs per)	Pounds of pollutant* sent off site	Capture % Efficiency	Control ID	Control % Efficiency	Control Efficiency Code**	Estimated Emissions (lbs/yr)
800	1	lacquer	95	gl	VOC	4.7	lb/gal		%		%		447
801	1	lacq thinner	120	gl	VOC	7.1	lb/gal		%		%		852
802	1	paint	940	gl	VOC	4.2	lb/gal		%		%		3,948
803	1	pnt thinner	707	gl	VOC	7.0	lb/gal		%		%		4,949
804	1	powder paint	20,200	lb	VOC	.001	lb/lb		%		%		20
									%		%		

Note: Do NOT change pre-printed Process ID numbers. See the instructions for information on how to delete materials that are no longer used, or to assign Process ID numbers for new materials.

* If you have off-site recycling/disposal of any of the materials listed above, you must complete an Off-site Recycling/Disposal Form to receive credit for reduced emissions.

NOTE: Emissions in col. 16 are calculated as follows: ([col. 10 × col. 12] − col. 13) × (1 − [col. 14 × col. 15])

**** Control Efficiency Reference Codes**

1 = Tested efficiency / EPA reference method
2 = Tested efficiency / other source test method
3 = Design value from manufacturer
4 = Best guess / engineering estimate
5 = Calculated based on material balance
6 = Estimated, based on a published value.

EXAMPLE: Cleaning solvent (with recycling)

***Evaporative Process Form* 2002**

Permit number(s) ***999999***

1- Process Type/Description: ***Cleaning metal parts***

2- Process TIER Code: ***080103*** **SOLVENT USE: DEGREASING - COLD CLEANING**

3- Seasonal Throughput Percent: Dec-Feb ***25*** % Mar-May ***25*** % Jun-Aug ***25*** % Sep-Nov ***25*** %

4- Normal Operating Schedule: Hours/Day ***4*** Days/Week ***5*** Hours/Year ***1040***

5- Typical Hours of Operation *(military time)* Start ***1300*** End ***1700***

6- For STORAGE TANKS only. Select only one: ☐ Above Ground Vaulted ☐ Under Ground ☐ Above Ground NON-Vaulted

NOTE: Place an X in any gray cell to mark data requested to be held confidential. See Instructions for requirements for information to be deemed confidential.

7	8	9	10		11*	12		13	14	15			16
Process ID	Stack ID(s)	Material Type	Annual Usage Input	lb or gal	VOC, HAP&NON or NHx	Emission Factor	EF Units (lbs per)	Pounds of pollutant* sent off site	Capture % Efficiency	Control ID	Control % Efficiency	Control Efficiency Code**	Estimated Emissions (lbs/yr)
3	***2***	***sanitizer***	***716***	***lb***	***VOC***	***1.0***	***lb***		***95*** %	***1***	***80*** %	***3***	***172***
6		***gun cleaner***	***180***	***gl***	***VOC***	***7.2***	***gl***	***448***	%		%		***848***
7		***xyz stripper***	***1300***	***gl***	***VOC***	***3.3***	***gl***	***3,237***	%		%		***1,053***
8		***cleaning solvents***	***358***	***gl***	***VOC***	***6.4***	***gl***	***892***	%		%		***1,399***
9		***generoclean***	***2258***	***gl***	***VOC***	***6.8***	***gl***	***5,623***	%		%		***9,731***
									%		%		

Note: Do NOT change pre-printed Process ID numbers. See the instructions for information on how to delete materials that are no longer used, or to assign Process ID numbers for new materials.

* If you have off-site recycling/disposal of any of the materials listed above, you must complete an Off-site Recycling/Disposal Form to receive credit for reduced emissions.

NOTE: This example shows the case where 2,400 of the original 4,096 gallons of materials #6 through 9 were captured for off-site recycling, and the pollutant content of the waste material was estimated to be 75% of the original. The pounds of pollutant sent off-site shown in column 13 is calculated on the example Off-Site Recycling/Disposal Form on the next page.

EXAMPLE

Off-Site Recycling/Disposal Form 2002

Permit number(s) ***999999***

NOTE: If you need blank copies of this form, call the Emissions Inventory Unit at (602) 506-6790 or consult our web page at www.maricopa.gov/envsvc/air/ei.asp. If any waste streams contain a significant amount of solid material (recorded in pounds), contact the Emissions Inventory Unit for assistance in how to report these materials.

Provide one copy of this form for each waste stream at your business location. Make copies of this page as needed.

A waste stream is the liquid waste from one or more processes mixed together to make one liquid waste product before it is taken off site for recycling, disposal or combustion.

1) Assign a unique one or two-digit ID number to identify the waste stream that will be described below. ***01***
(Start with ID# 1 for first waste stream, then use 2 for second, etc.)

2) How many gallons of liquid waste did this waste stream produce in 2002? ***2,400*** gallons.
Keep waste disposal company manifests as proof that this amount of liquid waste was taken off-site.

3) What was the **average** pollutant content of the liquid waste stream?

VOC ***4.25*** lbs/gal HAP&NON _____ lbs/gal NHx _____ lbs/gal

NOTE: Liquid waste normally has less pollutant content than the new product. Some of the pollutant evaporates during the use of the product, and there is usually dirt, water and/or other contaminants in the liquid waste. The estimated pollutant content of the liquid waste is usually between 50% and 95% of the new product. This example estimates an average VOC content (reported on line 3) to be 75% of the original VOC content of 5.67 lbs/gal., to account for evaporation and contaminants. See the example on page 18 to calculate a weighted average.

4) Calculate the total annual pollutant content of the liquid waste in this waste stream.
(volume of liquid waste, from line 2) × (pollutant content, from line 3) = Total pollutants in waste stream, in lbs/yr.

VOC ***10,200*** lbs/yr HAP&NON _____ lbs/yr NHx _____ lbs/yr

5) List the process ID numbers of the processes contributing to this waste stream. Also estimate the pounds of pollutant that each process contributed to this waste stream.

NOTE: Column totals in the table below must equal the total for each pollutant type reported on line 4. The quantities you report below for each pollutant and process must also be reported in column 13 on the Evaporative Process Form.

Process ID		Annual VOC (lbs)		Annual HAP&NON (lbs)	Annual NHx (lbs)
6	Contributed about	***448***	lbs	lbs	lbs
7	Contributed about	***3,237***	lbs	lbs	lbs
8	Contributed about	***892***	lbs	lbs	lbs
9	Contributed about	***5,623***	lbs	lbs	lbs
	Contributed about		lbs	lbs	lbs
	Contributed about		lbs	lbs	lbs
	Contributed about		lbs	lbs	lbs

EXAMPLE: Documentation of Emission Factor Calculations

Identify the process ID(s) and pollutant(s). Show calculations made to obtain the emission factors used for the process(es). Include references to data sources used, including the document name, date published, page numbers, etc.

Emission Factor Calculation

Process ID ***201*** Permit number ***999999***

Emission factors derived from source test performed 6/12/97 by XYZ Engineering Company (copy of summary tables also attached).

Outlet (after controls):

CO = 0.43 lb/hr × 1 hr/60 min × 1 min/77.9 cu. ft × 1,000,000 cu. ft/MMCF
= 92.0 lb/MMCF

NOx = 0.09 lb/hr × 1 hr/60 min × 1 min/77.9 cu. ft × 1,000,000 cu. ft/MMCF
= 19.3 lb/MMCF

NOTE: The example below shows how the weighted average of the materials going into the waste stream is calculated. A weighted-average emission factor has been calculated by listing usage amounts and emission factors for each material, summing each column, and then dividing the total emissions by the total gallons used.

In this example: 23,232 lbs ÷ 4,096 gal = 5.67 lb/gal average VOC content. This emission factor is then used to calculate the average pollutant content in the Off-site Recycling / Disposal Form example.

This process can also be used to find the weighted average emission factor for similar materials if you are reporting them together as a single line item on the Evaporative Process form. Refer to the explanation of grouping on page 4.

Process ID ***8***

Material Type	2002 Usage	Units	VOC (lbs/unit)	VOC Emissions (= Usage × VOC content)
gun cleaner	*180*	*gal*	*7.2*	*1,296 lbs.*
xyz stripper	*1,300*	*gal*	*3.3*	*4,290*
cleaning solvent	*358*	*gal*	*6.4*	*2,291*
generoclean solvent	*2,258*	*gal*	*6.8*	*15,354*
Totals:	***4,096***	***gal***		***23,231 lbs.***

Average VOC content:	***23,231 lbs. / 4,096 gals***	***=***	***5.67 lb/gal***

Calculating an emission fee:

– If your total emissions on line 6 of the Data Certification/Fee Calculation Form are less than 10,000 lbs., you have no emission fee to pay.

– If your total emissions from line 6 are 10,000 lbs. or more, divide the total emissions by 2000 to convert pounds into tons of VOC. **Round to the nearest ton.** Multiply this number by $38.69 to calculate your emission fee.

The table below summarizes annual emission fees for reports up to 25 tons:

If your annual emissions total in POUNDS is:	Your annual total in TONS is:	Your 2002 emissions fee is:
Less than 10,000 lbs.		**$0.00**
between 10,000 – 10,999.9 lbs.	5	$193.45
between 11,000 – 12,999.9 lbs.	6	$232.14
between 13,000 – 14,999.9 lbs.	7	$270.83
between 15,000 – 16,999.9 lbs.	8	$309.52
between 17,000 – 18,999.9 lbs.	9	$348.21
between 19,000 – 20,999.9 lbs.	10	$386.90
between 21,000 – 22,999.9 lbs.	11	$425.59
between 23,000 – 24,999.9 lbs.	12	$464.28
between 25,000 – 26,999.9 lbs.	13	$502.97
between 27,000 – 28,999.9 lbs.	14	$541.66
between 29,000 – 30,999.9 lbs.	15	$580.35
between 31,000 – 32,999.9 lbs.	16	$619.04
between 33,000 – 34,999.9 lbs.	17	$657.73
between 35,000 – 36,999.9 lbs.	18	$696.42
between 37,000 – 38,999.9 lbs.	19	$735.11
between 39,000 – 40,999.9 lbs.	20	$773.80
between 41,000 – 42,999.9 lbs.	21	$812.49
between 43,000 – 44,999.9 lbs.	22	$851.18
between 45,000 – 46,999.9 lbs.	23	$889.87
between 47,000 – 48,999.9 lbs.	24	$928.56
between 49,000 – 50,999.9 lbs.	25	$967.25

EXAMPLE

Data Certification/Fee Calculation Form 2002

Permit number ***999999***

For EACH pollutant listed, total up all emissions recorded on your General Process and Evaporative Process Forms. Enter these numbers in column 1, "Totals from Process Forms." Report any emissions from accidental releases in column 2.
Add the figures in each row across, and enter the result in column 3, "Total Emissions".
Carefully follow the instructions on lines 6 through 8 to calculate any emission fee owed.

NOTE: "Accidental Releases" reported in column 2 should include all excess emissions reported to the Department under Rule 140, Section 500.

Summary of 2002 Annual Emissions:	(1) Totals from Process Forms	(2) + Accidental Releases	(3) = TOTAL 2002 Emissions
CO	***2,113***	***0***	***2,113***
NH_x		***0***	
Lead		***0***	

Emissions fees are based on your emissions of the following pollutants ONLY:

1	HAP&NON		***0***	
2	VOC	***24,220***	***0***	***24,220***
3	NO_x	***9,815***	***0***	***9,815***
4	SO_x	***645***	***0***	***645***
5	PM_{10}	***7,891***	***0***	***7,891***
6	**Add "TOTAL" column from lines 1 through 5 ONLY:**			***42,571*** lbs.
7	If line 6 is less than 10,000 pounds, no emission fee is due. Enter zero (0) on line 8. If line 6 is 10,000 pounds or more, divide line 6 by 2000 (pounds per ton) to get tons, and round the number to the nearest ton. (Drop any decimal .499 or less. Increase to the next whole number any decimal of .500 or more.) Enter the resulting WHOLE NUMBER here.			***21*** TONS
8	Multiply line 7 (a WHOLE number) by **$ 38.69**. This is your **2002 ANNUAL EMISSIONS FEE**. **NOTE:** If your total annual emissions are less than 10,000 lbs., no emissions fee is due.			$ ***799.68***

NOTE: Review specific requirements for data confidentiality on page 5. We cannot hold any data confidential without the required documentation.

TO COMPLETE YOUR EMISSIONS INVENTORY REPORT:

- If your annual emissions are 10,000 lbs. or more, include a check (made payable to Maricopa County Environmental Services) for the amount calculated on line 8 above.
- Complete the Confidentiality Statement below.
- Sign and date this form below where indicated.
- Send the **original** copy of your completed forms, along with any emission fee due to: Maricopa County Environmental Services Dept., Emissions Inventory Unit, 1001 No. Central Ave., Suite 100, Phoenix, AZ 85004. Keep a copy of all forms for your records.

CONFIDENTIALITY STATEMENT:

This annual emissions report contains requests to keep some data confidential. ☐ YES ☒ NO
If you check "YES", you must submit documentation and meet certain requirements before your data can be deemed confidential. See enclosed instructions for further details.

NOTE: The Data Certification form must be signed by a responsible company official.

CERTIFICATION STATEMENT:

I declare under penalty of perjury that the data (e.g. inputs, emission factors, controls, and annual emissions) presented herein represents the best available information and is true, accurate and complete to the best of my knowledge.

Signature of owner/business officer | Date of signature | Telephone number

Type or print full name of owner/business officer | Type or print full title